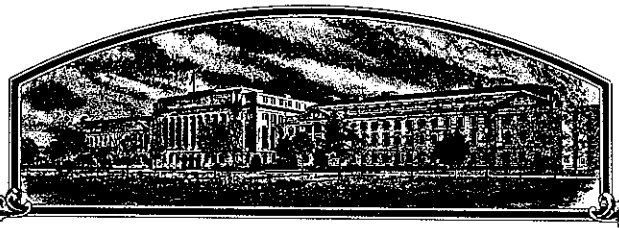

No. 8900154

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Jacob Hartz Seed Company, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Hartz 6200'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D.C. *this* 31st *day of* August *in the year of our Lord one thousand nine hundred and* ninety.

Attest:

Kenneth A. Evans

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Clayton Yeutter

Secretary of Agriculture

APPROVAL EXPIRES 2-28-88

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION	3. VARIETY NAME
JACOB HARTZ SEED CO., INC.	H79-17006	HARTZ 6200

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*	5. PHONE *(Include area code)*	FOR OFFICIAL USE ONLY PVPO NUMBER
P.O. BOX 946 STUTTGART, AR 72160	(501)673-8565	8900154

6. GENUS AND SPECIES NAME	7. FAMILY NAME *(Botanical)*	FILING DATE / TIME
Glycine max	Leguminosea	Apr. 12, 1989 ☐ A.M. ☐ P.M.

8. KIND NAME	9. DATE OF DETERMINATION	FEES RECEIVED
SOYBEAN	1986	AMOUNT FOR FILING $ 1800.00 DATE Apr. 10, 1989 AMOUNT FOR CERTIFICATE $ 200.00 DATE August 24, 1990

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
CORPORATION

11. IF INCORPORATED, GIVE STATE OF INCORPORATION	12. DATE OF INCORPORATION
DELAWARE	1984

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
DR. CURTIS WILLIAMS
JACOB HARTZ SEED CO., INC.
P.O. BOX 946
STUTTGART, AR 72160
PHONE *(Include area code)*: (501)673-8565

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED
- a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- b. ☒ Exhibit B, Novelty Statement.
- c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
- d. ☐ Exhibit D, Additional Description of Variety.
- e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)* ☐ Yes *(If "Yes," answer items 16 and 17 below)* ☒ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ Yes ☐ No	☒ Foundation ☒ Registered ☒ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ Yes *(If "Yes," give date)*
☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ Yes *(If "Yes," give names of countries and dates)*
☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT	DATE
Curtis Williams	March 31, 1989
SIGNATURE OF APPLICANT	DATE

FORM LS-470 (3-86) *Edition of 7-84 obsolete.*

EXHIBIT A

ORIGIN AND BREEDING HISTORY

'HARTZ 6200'soybean was developed from an original cross made at Stuttgart, Arkansas in 1976. The pedigree is unknown. The modified single seed descent breeding method was followed from F2-F4 generations. Single plants were harvested in F5. A single plant row was harvested in bulk in F6 and designated H79-17006. It was tested in Hartz Seed Company Tests in 1980-1988 and in University Soybean Strains Tests as H79-17006 in 1986. It was tested in State Experiment Station Soybean Variety Tests as HARTZ X6200 and HARTZ 6200 in 1987 and 1988, respectively.

HARTZ 6200 was screened for Phytophthora megasperma var. sojae, Rotylenchulus reniformis, Heterodera glycines race 3 and 4, Meloidogyne incognita, Xanthomonas phaseoli var. sojensis, and Septoria glycines at Stuttgart. Meloidogyne arenaria and Meloidogyne javanica screenings were made in the greenhouse at the University of Georgia. Seed coat peroxidase activity was determined at Stuttgart.

EVIDENCE OF STABILITY - HARTZ 6200 has bred true in multiple screenings for pest resistance and for the major morphological characters through three years of seed increase.

KINDS OF VARIANTS - As many as 0.5% (15) seeds per pound may be present that have hila colors other than brown and the 15 plants may have either purple or white flowers and/or tawny or gray pubescent.

EXHIBIT B

NOVELTY STATEMENT

'HARTZ 6200' is most similar to 'BEDFORD', but Hartz 6200 is resistant to Race 1 - 4 of *Phytophthora megasperma* var. *sojae* while Bedford is susceptible to races 1, 2, and 4.

JSH
23 July 1990

FORM APPROVED: OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (Glycine max L.*)*

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
JACOB HARTZ SEED CO., INC.	H79-17006	HARTZ 6200

ADDRESS *(Street and No., or R.F.D. No., City, State, and Zip Code)*
P.O. BOX 946
STUTTGART, AR 72160

FOR OFFICIAL USE ONLY
PVPO NUMBER
8900154

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g., [0][9]). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:

[2]

1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ **2. SEED COAT COLOR: (Mature Seed)**

[1] 1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other *(Specify)* _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

[2] 1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ **4. SEED SIZE: (Mature Seed)**

[1][5] Grams per 100 seeds

★ **5. HILUM COLOR: (Mature Seed)**

[3] 1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other *(Specify)* _____

★ **6. COTYLEDON COLOR: (Mature Seed)**

[1] 1 = Yellow 2 = Green

★ **7. SEED PROTEIN PEROXIDASE ACTIVITY:**

[1] 1 = Low 2 = High

★ **8. SEED PROTEIN ELECTROPHORETIC BAND:**

[0] 1 = Type A ($SP1^a$) 2 = Type B ($SP1^b$)

★ **9. HYPOCOTYL COLOR:**

[2] 1 = Green only ('Evans'; 'Davis') 2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')
4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ **10. LEAFLET SHAPE:**

[3] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other *(Specify)* _____

4

11. LEAFLET SIZE:

[3] 1 = Small ('Amsoy 71'; 'A5312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')
3 = Large ('Crawford'; 'Tracy')

12. LEAF COLOR:

[2] 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')
3 = Dark Green ('Gnome'; 'Tracy')

★ **13. FLOWER COLOR:**

[1] 1 = White 2 = Purple 3 = White with purple throat

★ **14. POD COLOR:**

[1] 1 = Tan 2 = Brown 3 = Black

★ **15. PLANT PUBESCENCE COLOR:**

[2] 1 = Gray 2 = Brown (Tawny)

16. PLANT TYPES:

[2] 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')
3 = Bushy ('Gnome'; 'Govan')

★ **17. PLANT HABIT:**

[1] 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Will')
3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

★ **18. MATURITY GROUP:**

[0][9] 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V
9 = VI 10 = VII 11 = VIII 12 = IX 13 = X

★ **19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)**

BACTERIAL DISEASES:

★ [2] Bacterial Pustule *(Xanthomonas phaseoli* var. *sojensis)*

★ [0] Bacterial Blight *(Pseudomonas glycinea)*

★ [0] Wildfire *(Pseudomonas tabaci)*

FUNGAL DISEASES:

★ [1] Brown Spot *(Septoria glycines)*

Frogeye Leaf Spot *(Cercospora sojina)*

★ [ ] Race 1 [ ] Race 2 [ ] Race 3 [ ] Race 4 [ ] Race 5 [X] Other *(Specify)* MR TO UNKNOWN RACE

[ ] Target Spot *(Corynespora cassiicola)*

[ ] Downy Mildew *(Peronospora trifoliorum* var. *manshurica)*

[ ] Powdery Mildew *(Microsphaera diffusa)*

★ [0] Brown Stem Rot *(Cephalosporium gregatum)*

[ ] Stem Canker *(Diaporthe phaseolorum* var. *caulivora)*

5

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

★ [0] Pod and Stem Blight *(Diaporthe phaseolorum* var; *sojae)*

[ ] Purple Seed Stain *(Cercospora kikuchii)*

[ ] Rhizoctonia Root Rot *(Rhizoctonia solani)*

Phytophthora Rot *(Phytophthora megasperma* var. *sojae)*

★ [2] Race 1 [2] Race 2 [2] Race 3 [2] Race 4 [0] Race 5 [0] Race 6 [0] Race 7

[0] Race 8 [0] Race 9 [1] Other *(Specify)* RACE 12,16 and 19

VIRAL DISEASES:

[ ] Bud Blight (Tobacco Ringspot Virus)

[ ] Yellow Mosaic (Bean Yellow Mosaic Virus)

★ [0] Cowpea Mosaic (Cowpea Chlorotic Virus)

[ ] Pod Mottle (Bean Pod Mottle Virus)

★ [0] Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

Soybean Cyst Nematode *(Heterodera glycines)*

★ [0] Race 1 [0] Race 2 [2] Race 3 [1] Race 4 [ ] Other *(Specify)* _____

[0] Lance Nematode *(Hoplolaimus Colombus)*

★ [1] Southern Root Knot Nematode *(Meloidogyne incognita)* moderately susceptible

★ [0] Northern Root Knot Nematode *(Meloidogyne Hapla)*

[2] Peanut Root Knot Nematode *(Meloidogyne arenaria)* moderately resistance

[2] Reniform Nematode *(Rotylenchulus reniformis)* MODERATE RESISTANCE

[1] OTHER DISEASE NOT ON FORM *(Specify)*: M javanica moderately susceptible

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

★ [1] Iron Chlorosis on Calcareous Soil

[ ] Other *(Specify)* _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[0] Mexican Bean Beetle *(Epilachna varivestis)*

[0] Potato Leaf Hopper *(Empoasca fabae)*

[0] Other *(Specify)* _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape		Seed Coat Luster	
Leaf Shape		Seed Size	
Leaf Color		Seed Shape	
Leaf Size		Seedling Pigmentation	

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY [1]	PLANT LODGING SCORE [2]	CM PLANT HEIGHT [3]	LEAFLET SIZE		SEED CONTENT [4]		SEED SIZE G/100 SEEDS [5]	NO. SEEDS/ POD [5]
				CM Width	CM Length	% Protein	% Oil		
HARTZ 6200 Submitted	135	2.0	90			44.4	19.1	15.1	2 ~~3000~~
BEDFORD Name of Similar Variety	135	2.3	102			42.6	20.2	12.4	~~3650~~ 3

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A_2 in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

1. average of 5 years at Stuttgart
2. average of 40 tests
3. average of 42 tests
4. average of 26 tests
5. average of 30 tests

8900154

EXHIBIT E

HARTZ 6200

BASIS OF APPLICANTS OWNERSHIP

Jacob Hartz Seed Company, Incorporated, Stuttgart, Arkansas established a Plant Breeding Program in 1972 for the purpose of developing, releasing, and maintaining stocks of soybean varieties developed by its Plant Breeding Program.

Dr. Curtis Williams, Plant Breeder, was licensed to breed soybeans by the Arkansas State Plant Board, December 9, 1977. Dr. Williams and co-workers developed and tested this variety in trials at Stuttgart, Arkansas, and outlying locations.

On April 23, 1983, Jacob Hartz Seed Company, Inc., was purchased by HybriTech Seed International, Inc., a wholly owned subsidiary of Monsanto, St. Louis, Missouri. Jacob Hartz Seed Company, Inc., was originally incorporated in 1948 in the state of Arkansas. In 1984 Jacob Hartz Seed Company, Inc., merged with the Monsanto-West Africa., Inc., a Delaware Corporation. Jacob Hartz Seed Company, Inc., is the present name of the merged corporation which is a Delaware corporation.

Dr. Curtis Williams is employed by Jacob Hartz Seed Company, Inc. By agreement between employee and Jacob Hartz Seed Company, Inc., all rights to any discovery, development or invention made by an employee are assigned to the company. No rights to the development of this variety are retained by the employee.